

Notice of Allowability

Application No.

09/788,105

Examiner

Thanhha Pham

Applicant(s)

UGLOW ET AL.

Art Unit

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 01/07/2005 and interview dated 01/31/05.
2. ☒ The allowed claim(s) is/are 41-45, 47, 48 and 50-52, 54.
3. ☒ The drawings filed on 16 February 2001 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
(a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
(b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Rick Wohld on 01/31/2005.

The application has been amended as follows:

- Cancel claims 21-24, 26-40
- In claim 47,

line 7, after " a first thickness" insert -- , wherein the inorganic dielectric layer is one of an un-doped TEOS oxide and a fluorine doped oxide –

- Cancel claim 49

Allowable Subject Matter

1. Claims 41-45, 47-48, 50-52 and 54 are allowed.
2. The following is an examiner's statement of reasons for allowance: Recorded Prior Art fails to disclose or suggest the combination of the multi-layer dielectric disposed over a substrate for used in the dual-damascene application as recited in the base claim 41 comprising an inorganic dielectric layer of a fluorine doped oxide disposed over the barrier layer, the inorganic dielectric layer having a first thickness; and a low dielectric constant layer of a carbon doped oxide disposed directly over and in

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direct contact with the inorganic dielectric layer, the low dielectric constant layer having a second thickness and defining metallization line layer; wherein metallization lines are formed in a first portion of the second thickness of the low dielectric constant layer, and a via path is configured to be defined in an entire portion of the first thickness of the inorganic dielectric layer and in at least a portion of the second thickness of the low dielectric constant layer. Recorded Prior Art also fails to disclose or suggest the combination of the multi-layer dielectric disposed over a substrate as recited in the base claim 47 comprising an inter-metal dielectric structure, the inter-metal dielectric structure consisting of: i) an inorganic dielectric layer disposed over the barrier layer, the inorganic dielectric layer having a first thickness, wherein the inorganic dielectric layer is one of an un-doped TEOS oxide and a fluorine doped oxide; and ii) a low dielectric constant layer disposed over and in direct contact with the inorganic dielectric layer, the low dielectric constant layer having a second thickness and defining metallization line layer; wherein metallization lines are formed in a first portion of the second thickness of the low dielectric constant layer, and a via path is configured to be defined in an entire portion of the first thickness of the inorganic dielectric layer and in at least a portion of the second thickness of the low dielectric constant layer.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanhha Pham whose telephone number is (571) 272-1696. The examiner can normally be reached on Monday and Thursday 9:00AM - 9:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thanhha Pham



CRAIG A. THOMPSON
PRIMARY EXAMINER